



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/098,615	03/18/2002	Michael Aronowich	82386	3678
20529	7590	05/11/2007		
NATH & ASSOCIATES 112 South West Street Alexandria, VA 22314			EXAMINER ROBERTSON, DAVID	
			ART UNIT 3623	PAPER NUMBER
			MAIL DATE 05/11/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/098,615	<b>Applicant(s)</b> ARONOWICH ET AL.	
	<b>Examiner</b> Dave Robertson	<b>Art Unit</b> 3623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 06 November 2002.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

### **DETAILED ACTION**

1. The following is a Final office action in response to Applicant's Amendment and Remarks of 11/06/2007. Claims 1-32 remain pending in the application.

#### ***Response to Amendment***

2. The specification is amended to correct a minor informality with respect to Figure 8.
3. Claims 1, 9, 11, 21, 23, 25, and 31 are amended to remove reference to "truncated" sales values. In these claims, now amended, "new...sales values excludes the sales values at all occurrences of sellouts" are understood to be new forecasted sales not including inventory which was sold in the period of sellout.

#### ***Response to Arguments***

4. Applicant's arguments with respect to 35 USC 112, second paragraph, with respect to claims 1-16, 21-23, and 29-31 and the amendment to "truncated sales values" made thereto, have been fully considered and are persuasive. The rejection is withdrawn.
5. Applicant's arguments with respect to 35 USC 112, second paragraph, with respect to claims 1-16, 21-23, and 29-31, with the amendment to "truncated sales values" made thereto, have been fully considered and are persuasive. The rejection is withdrawn.

Art Unit: 3623

6. Applicant's arguments with respect to the rejection of claims 1-32 under 35 U.S.C. 103(a) as being unpatentable over Ramaswamy et al (US Patent No. 6,006,202) have been fully considered but are not persuasive:

Applicant argues that a prima facie case of obviousness has not been established with respect to Ramaswamy alone; that Ramaswamy fails to teach or suggest all of the claim limitations; and even if given a teaching of the missing elements, Ramaswamy provides no motivation to combine, offers no reasonable expectation of success, and teaches away from the claimed invention (Remarks, page 13).

Specifically:

a. Applicant argues that Ramaswamy implements an algorithm for lost-sale inventory simulation for performing sensitivity analysis of inventory levels for any specified demand distribution, in contrast to the claimed invention which calculates hidden demand for an item where the demand is greater than the available stock prior to a sellout. Applicant argues that Ramaswamy does not consider sales data including sellouts with the purpose of evaluating a true demand (Remarks pages 14-16). Examiner respectfully disagrees:

Ramaswamy expressly considers sales data including sellouts in computing "lost sales at the end of each period" (column 3 from line 30) and calculates this "hidden demand" (in the language of the present invention) by subtracting expected demand (D) from on-hand inventory (W). Further, Ramaswamy need not be directed to the sole purpose of computing "hidden demand" to anticipate the element of estimating the hidden demand, nor must

Ramaswamy be directed to the purpose of the invention as whole to render obvious the claimed subject matter.

b. Applicant further argues that Ramaswamy does not teach generating a new time series of sales values from previously obtained time series of sales values and using the new time series to forecast a mean demand value, and therefore cannot estimate hidden demand using the actual sales as embodied in the forecasted mean demand value. Examiner respectfully disagrees:

Ramaswamy expressly teaches generating a new time series of sales values from previously obtained time series of sales values. Numerous uses of “observed values” and prior demand distributions, realized demand from prior periods, and successive evaluation of demand periods over a time horizon (see column 3 from line 4), teach the use of prior sales values to forecast demand mean values.

c. Applicant further argues that Ramaswamy does not teach using a Poisson probability demand distribution using the specific relationship (the equation of claims 2, 10, 22, and 30) for the forecasted mean demand value.

Examiner agrees, however, Ramaswamy was not alone relied upon to teach using a Poisson probability demand distribution (see Office Action 08/04/2006, page 4). Rather, the Examiner took official notice that the Poisson probability distribution and cumulative probability distribution functions were old and well known in the art (including the art of inventory forecasting) at the time of invention and that, with the observation that Ramaswamy teaches the use of *any*

Art Unit: 3623

demand distribution (column 2 line 25) and the Poisson being one example common to the art, it would have been obvious to one of ordinary skill to employ the Poisson in the teachings of Ramaswamy.

d. With regard to Applicant's argument that Ramaswamy teaches away from the claimed subject matter Applicant has not, specifically, identified how Ramaswamy teaches away or renders the prior art unsatisfactory for the intended purpose (as in MPEP § 2143.01 (D)), except perhaps to the purpose of "sensitivity analysis" rather than the more specific purpose of calculating hidden demand.

In response, and as above in (a) Ramaswamy does not need to be purposed solely to the purpose of the present invention to anticipate or render obvious, and further, Ramaswamy being squarely in the art of the present invention and teaching the calculation of lost sales (i.e. hidden demand), Ramaswamy would appear not to be teaching away from this element or any other of the rejected claims.

7. Accordingly, the grounds of rejection over all claims as in the prior office action are maintained.

***Requirement for Information (Acknowledgement of Response)***

8. Applicant has responded satisfactorily to the Requests for Information (Rule 1.105) in the prior office action. Applicant submits that the *Demantra*™ *Demand Planner* forecast engine alone has incorporated the claimed subject matter; that

Art Unit: 3623

unknown patents may have been used in the preparation of the patent application, though their use limited to claiming style and not used as prior art; and that the equation in claims 2, 10, 22, and 30 was developed solely by the inventors using mathematical techniques alone (Remarks, page 18).

### ***Specification***

9. The disclosure is objected to because of the following informalities: Applicant submits in response to the Rule 1.105 request for information, that the equation in claims 2, 10, 22, and 30 was developed solely by the inventors using mathematical techniques alone, however, the specification is unclear on that point. The specification, however, suggests otherwise (see page 6 from line 14, reading from "Moreover, it has been empirically found...the hidden demand as an occurrence of a sellout is given by: [the equation]."). For a consistent written record on the provenance of the equation, clarification or correction to the specification is requested.

### ***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1-32 rejected under 35 U.S.C. 103(a) as being unpatentable over Ramaswamy et al (US Patent No. 6,006,202), herein "Ramaswamy".

As per claim 1, Ramaswamy disclose a computer-implemented method for performing sensitivity analysis and optimization of inventory stock and reorder levels, including the calculating of hidden demand for a consumer item at an occurrence of a sellout, the method comprising the steps of:

(a) generating a new data set of sales values from the time series of sales values for the consumer item at the outlet, the new set of sales values excluding the sales value at least the occurrence of the sellout (col. 3, lines 5-42; The system generates new sales values  $K_i$  which defines lost sales within a time interval  $T$  from sales represented by variable  $Y_i$  which the total of stock on hand plus on order. Both lost sales and stock on order represent hidden demand, and the new sales values  $K_i$  defines only lost sales within a time interval  $T$  and does not include sales over the observation period);

(b) applying a statistical causal time series forecasting model of count data on the new data set of sales values to determine a forecasted mean demand value for the consumer item at the occurrence of the sellout (col. 1, lines 38-48; discloses the use of statistics and sales value calculation as a function of time in demand forecasting. col. 3, lines 5-42; The system generates new sales values  $K_i$  within a time interval  $T$  from sales represented by variable  $Y_i$  defining the total of stock on hand plus on order, indicating a sellout (Abstract); the system calculates and analyzes average inventory and lost sales or demand); and



Art Unit: 3623

(c) estimating the hidden demand at the occurrence of the sellout using a single parameter probability distribution with a parameter assuming the forecasted mean demand value (col. 1, lines 42-48; the use of probability distribution functions in demand forecasting; col. 3, lines 5-42; The system calculates hidden demand indicated by lost sales, expressed as variable  $K_i$ , and the realized demand, expressed as variable  $D_i$ );

Ramaswamy does not expressly disclose a *seasonal* forecasting model for *perishable* items; however, the method of Ramaswamy can be used for seasonal or non-seasonal forecasting for perishable or non-perishable items. That the claimed method includes a seasonal forecasting model for perishable items does not distinguish the claim over the prior art since the intended use does not change the overall method. The intended use must result in manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Accordingly, it would have been obvious to a person of ordinary skill in the art at the time of the invention to utilize the method disclosed by Ramaswamy in a seasonal forecasting model for perishable items in order to generate values of simulated demand for items over a given time horizon.

As per claim 2, Ramaswamy discloses the method of claim 1, but does not expressly disclose a single-parameter (conditional) Poisson probability distribution for the demand, with parameter  $\lambda$  assuming the forecasted mean demand value whereby:

$$H = \lambda \left( 1 + \frac{f(D)}{1 - F(D)} \right) - D$$

where  $f(\bullet)$  is the Poisson probability distribution function, and  $F(\bullet)$  is the Poisson cumulative distribution function, and  $D$  is the draw of the perishable consumer item leading up to the occurrence of the sellout.

It is old and well known in the art of demand forecasting to employ a Poisson probability function in order to predict a series of discrete sales events. For example, *Bradford and Sugree* ("Estimating the demand pattern for C category items," 1997) teaches demand forecasting using the Poisson distribution, further citing *Robbins* ("Prediction and estimation for the compound Poisson distribution", 1977) for the theory and formulae in the use of the conditional Poisson probability distribution for demand forecasting, sales events being discrete occurrences of demand, whether actual or forecasted, are discrete events.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize a Poisson probability and cumulative distribution functions in order to determine the cumulative probable distribution of sales events such as the draw of the consumer item leading up to the occurrence of a sellout.

As per claim 3, Ramaswamy discloses the method according to claim 1 as discussed above, and further that the new data set of sales values excludes the sales values at all occurrences of sellouts over the observation period (col. 3, lines 5-42; The new sales values  $K_i$  defines only lost sales within a time interval  $T$  and does not include

sales over the observation period).

As per claim 4, Ramaswamy discloses the method according to claim 1 as discussed above, and further step (d) of calculating the value of at least one performance metric on the basis of adjusted sales data compensating for hidden demand at occurrences of sellouts over an evaluation period (See col. 3, lines 27-35; Performance measures are calculated based on sales data  $K_i$  within a time interval  $T$  from sales represented by variable  $Y_i$  defining the total of stock on hand plus on order, indicating a sellout).

As per claim 5, Ramaswamy discloses the method according to claim 1 as discussed above, and further step (d) of calculating the total stockout for the consumer item at the outlet over the evaluation period for evaluating the efficacy of a distribution policy for the consumer item at the outlet over the evaluation period (col. 3, lines 31-32; The system generates total stockout  $K_i$  within a time period. See col. 1, lines 28-32; The system is used to determine an optimized inventory policy and support inventory distribution decisions).

Ramaswamy does not expressly disclose that the consumer item is perishable. However, the method disclosed by Ramaswamy can be used for sales forecasting and analysis of perishable items as discussed above. That the claimed method discloses perishable items does not distinguish the claim over the prior art since the intended use does not change the overall method. The intended use must result in manipulative

Art Unit: 3623

difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Accordingly, it would have been obvious to a person of ordinary skill in the art at the time of the invention to utilize the method disclosed by Ramaswamy in a forecasting model for perishable items in order to generate values of simulated demand over a given time horizon.

As per claim 6, Ramaswamy discloses the method according to claim 4 as discussed above, and further the step (d) of calculating the value of at least one performance metric relating to the sale of the perishable consumer item at the outlet which could be expected to occur over the evaluation period by virtue of the consumer item being delivered in accordance with a recommended distribution policy as opposed to an actual distribution policy for comparing the efficacy of the recommended distribution policy to the efficacy of the actual distribution policy over the evaluation period (see col. 3, lines 27-35; Performance measures are calculated based on sales data  $K_i$  within a time interval  $T$ . See col. 3, line 9; Delivered items are represented by variable  $W$ , stock on hand. See col. 3, lines 20-35; The system provides decision support for a given time period according to the disclosed policy. See col. 3, lines 55-59; An algorithm provides data to facilitate analysis of the effect of varying data, and each iterative simulation provides hypothetical data as a recommended policy, and determines the effect of change in performance. See col. 2, lines 38-44; The system provides data to compare actual distribution policy to simulated hypothetical policy).

Ramaswamy does not expressly disclose that the consumer item is perishable. However, the method disclosed by Ramaswamy can be used for sales forecasting and analysis of perishable items as discussed above. That the claimed method discloses perishable items does not distinguish the claim over the prior art since the intended use does not change the overall method. The intended use must result in manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Accordingly, it would have been obvious to a person of ordinary skill in the art at the time of the invention to utilize the method disclosed by Ramaswamy in a forecasting model for perishable items in order to generate values of simulated demand over a given time horizon.

As per claim 7, Ramaswamy discloses the method according to claim 6 as discussed above, and further the step (d) of calculating the value of at least one performance metric from the following list of performance metrics: change in sales, change in returns, change in number of sellouts, and change in stockout (col. 3, lines 55-63; The system calculates the effect on performance due to unit changes in specified reorder point s representing a sellout).

As per claim 8, Ramaswamy discloses the method according to claim 1 as discussed above, but does not expressly disclose that the perishable consumer item is a printed media publication. However, the method disclosed by Ramaswamy can be

Art Unit: 3623

used for sales forecasting and analysis of perishable items as discussed above. That the claimed method discloses that the perishable item is a printed media does not distinguish the claim over the prior art since the intended use does not change the overall method. The intended use must result in manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Accordingly, it would have been obvious to a person of ordinary skill in the art at the time of the invention to utilize the method disclosed by Ramaswamy in a forecasting model for perishable items in order to generate values of simulated demand over a given time horizon.

12. Claims 9-16, drawn to a system capable of executing the steps of the method in claims 1-8, recite substantially similar subject matter as claims 1-8 above and are therefore rejected on the same basis as claims 1-8.

13. Claims 17-32 drawn to a method recite substantially similar subject matter as claims 1-8 above and are therefore rejected on the same basis as claims 1-8.

***Conclusion***

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

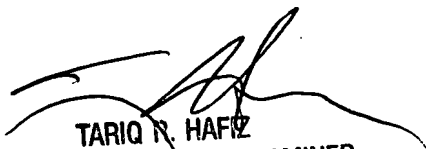
Art Unit: 3623

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dave Robertson whose telephone number is 571-272-8220. The examiner can normally be reached on 8:15am to 5:15pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz can be reached on 571-272-6729. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

dcr



TARIQ R. HAFIZ  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3623